5TXBR2 USER'S MANUAL

(INTEL 430TX CHIPSET)

PC `97 COMPLIANT
★★★★★★

MMX ™
★★★★★★

SDRAM
★★★★★★

Switching Voltage Regulator
★★★★★★

One jumper for CPU core frequence
★★★★★★

Ultra DMA/33 Extra "TRIONES" Ultra DMA/33 Driver Bundle
★★★★★★

ACPI Ready
· Modem Ring remote wake up
· RTC alarm
· CPU fan auto-stopping in suspend mode
· ATX power supply software off
★★★★★★

ISO-9002 CE energy
EPA POLLUTION PREVENTER
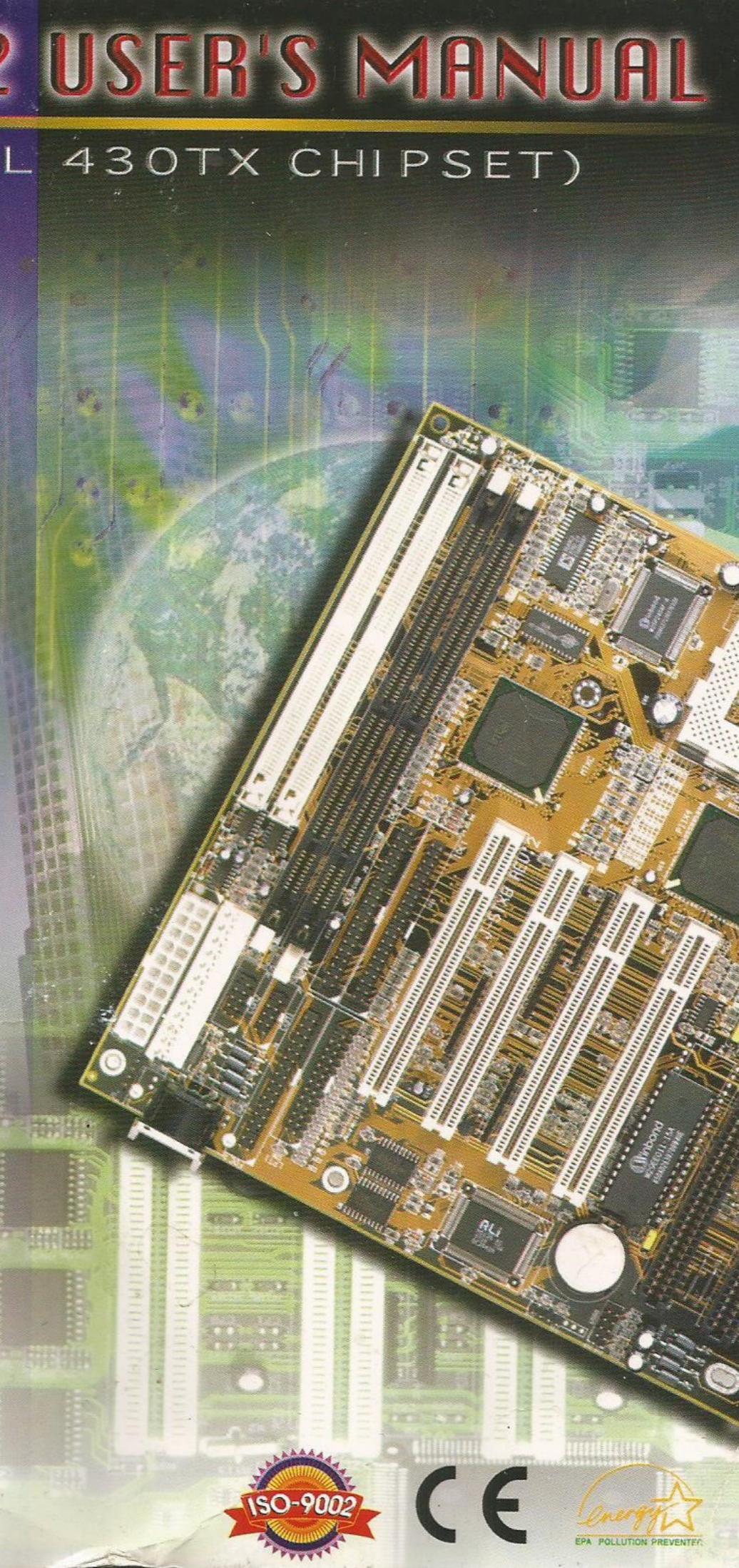
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Chapter 1

Features of This Motherboard

The J-5TXBR2 is designed for the PC user who wants a great many features in a small package. This motherboard:

- **Easy Installation:** Is equipped with BIOS supports auto detection of hard drives and plug and play to make setup of hard drives and expansion cards virtually automatic.
- **Intel chipset:** Intel's 430TX PCIset with I/O subsystems.
- **Multi-Speed Support:** Support one of 75~300MHz Pentium CPU on a ZIF Socket 7, support Intel P54C /Cyrix M1/AMD K5, Intel P55C (MMX) / Cyrix M2 (MMX) / AMD K6 (MMX) CPU.
- **One Jumper:** Only one jumper selector for CPU External Clock Frequency and Bus/Core Ratio selected, it is easy for user to install CPU.
- **L2 Cache:** Provides on board 512KB Pipelined Burst SRAM.
- **DRAM Memory Support:** Supports 2x72-pin SIMMs and 2x168-pin DIMMs (3.3v)of 4MB, 8MB, 16MB, 32MB, or 64MB to from a memory size between 8MB to 256MB. Support both Fast Page Mode and Extended Data Output (EDO) SIMMs. The J-5TXBR2 also supports Sychronous DRAM module (DIMM).
- **ISA and PCI Expansion Slots:** Provides three 16-bit ISA slots, four 32-bit PCI slots.
- **Super Multi-I/O:** Provides two high-Speed UART compatible serial ports and one parallel port with EPP and ECP capabilities. UART2 can also be directed to the Infrared Module for wireless connections. Two floppy drives of either 5.25" or 3.5" (1.44MB or 2.88MB) are also supported without an external card.
- **PCI Bus Master IDE Controller and ULTRA DMA 33:** On-board PCI Bus Master IDE controller with two connectors that supports four IDE devices in two channels, provides faster data transfer rates, and supports Enhanced IDE devices such as Tape Backup, CD-ROM drives and LS-120. This controller also supports PIO Modes 3 and 4 and Bus Master IDE DMA 33Mbyte/Sec.
- **Bundle with "TRIONES" ULTRA DMA 33 Driver to improve IDE transfer rate for up to 33Mbyte/sec**
- **ACPI supporting for OS Directed Power Management**
  Ring-In Wake up: When Ring-In the system can wake up from SMI Mode.
  Ring-In Power On: When Ring-In the system can power on automatic by this function by use of ATX power supply.
  RTC Power On: When use of ATX power supply and Enabled RTC Power On function, you can setting RTC alarm to power on the system at the time length you setting .
  Power Button: Press the button will place the system power on/off when use ATX power supply .
  CPU fan auto-stopping when in suspend mode.
  Software off when use ATX power supply.
- **Power Support:** Efficient PWM switching power instead of traditional Linear Voltage Regulator to prevent power component from being burned-out.
- **PC 97 ready**
- **Optional IrDA and PS/2:** This motherboard supports an optional infrared port module for wireless interface and PS/2 mouse cable set.
- **Optional USB Port Connector:** This motherboard supports two USB port connectors for USB devices.
- **Baby AT Form Factor:** Dimensions 22cm x 22cm.

# Chapter 2

Installation

2-1 Map of the Motherboard
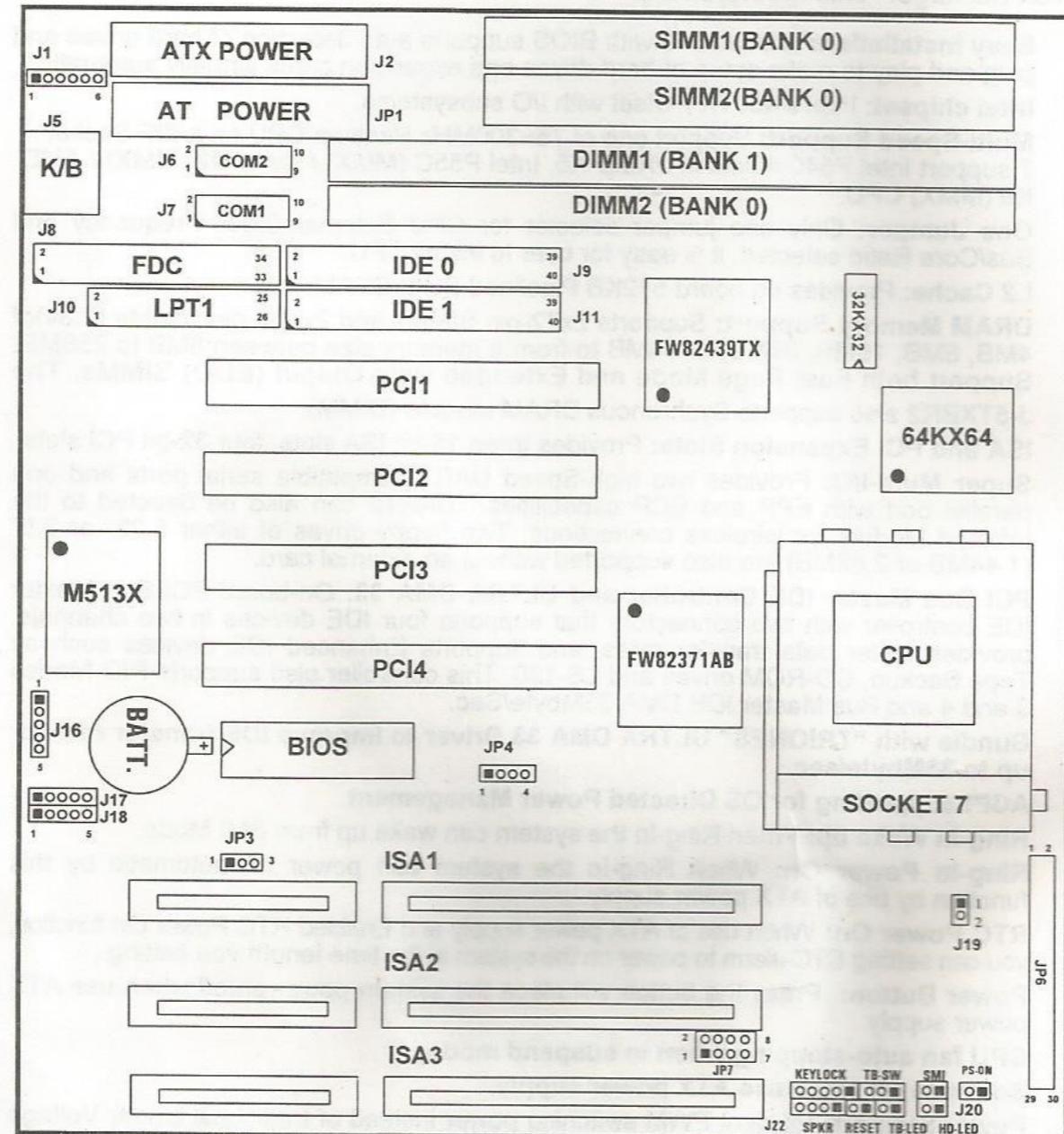
Figure 2-1

Jumpers

1) JP3   p. 4   Flash ROM voltage Setting **(Yellow color selector)**
2) JP7   p. 4   CPU I/O Voltage Selection **(Yellow color selector)**
3) JP6   p. 5   One Jumper Selection for CPU Type **(Blue color selector)**
4) JP4   p. 7   CMOS RAM (Normal/Clear CMOS Data) **(Yellow color selector)**

Connectors

1) JP1   p. 10   AT Power connector (12-pins Block)
2) J2   P. 11   ATX Power connector (20-pins Block)
3) J5   p. 11   Keyboard connector (5-pins Female)
4) J1   p. 12   PS/2 Mouse connector (6-pins Block)
5) LPT1(J10)   p. 12   Parallel Port connector (26-pins Block)
6) COM1(J7)/COM2(J6)   p. 12   Serial Port COMA & COMB (10-pins Block)
7) FDC(J8)   p. 13   Floppy Driver connector (34-pins Block)
8) IDE0(J9)   p. 13   Primary IDE connector (40-pins Block)
9) IDE1(J11)   p. 14   Secondary IDE connector (40-pins Block)
10) SMI   p. 14   SMI suspend Switch lead (2-pins)
11) TBLED   p. 15   Turbo LED switch (3-pins)
12) RST   p. 15   Reset Switch lead (2-pins)
13) KEYLOCK   p. 15   Keyboard Lock Switch (5-pins)
14) SPEAKER   p. 15   Speaker connector (4-pins)
15) HDLED   p. 16   IDE activity LED connector (2-pins)
16) IR(J16)   p. 16   Infrared Module connector (5-pins)
17) USB0(J17)/USB1(J18)   p. 16   USB Port connectors
18) J19   p. 17   CPU Fan connector
19) J20   p. 17   Power-On Button connector

Expansion Slots

1) SIMM Slots   p. 8   DRAM Memory Expansion slots
2) DIMM Slots   p. 8   DRAM Memory Expansion slots
3) ZIF Socket 7   p. 8   Socket for Central Processing Unit (CPU)
4) ISA 1,2,3   p. 9   16-bit ISA Bus Expansion slots
5) PCI 1,2,3,4   p. 9   32-bit PCI Bus Expansion slots

2-2 Installation Steps

Before using your computer, you must follow the steps as follows:

1. Set Jumpers on the Motherboard
2. Install the CPU
3. Install DRAM Modules
4. Install Expansion card
5. Connect Cables, Wires, and Power Supply
6. Setup the BIOS Software

2-2-1 Jumper Settings

1. **Flash ROM Voltage Selection: JP3 (Yellow color selector)**

   These jumpers set the voltage supplied to the Flash ROM. It depend on Flash ROM Brand.

Programming	JP3	
+12V	1-2	(Intel, MXIC)
+5V	2-3	(SST, Winbond)

   Flash ROM Voltage Selection
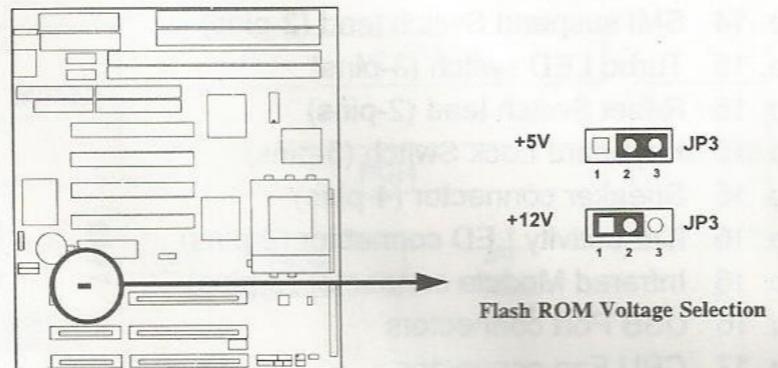
2. **CPU Voltage Selection: JP7 (Yellow color selector)**

Selections	1-2	3-4	5-6	7-8
2.1V	short	open	open	open
2.8V	open	open	open	short
2.9V	short	open	open	short
3.2V	open	open	short	short
3.3V	short	open	short	short
3.45V	open	short	short	short
3.52V	short	short	short	short

CPU Voltage Selection

2.1V   2.8V   2.9V

3.2V   3.3V   3.45V   3.52V
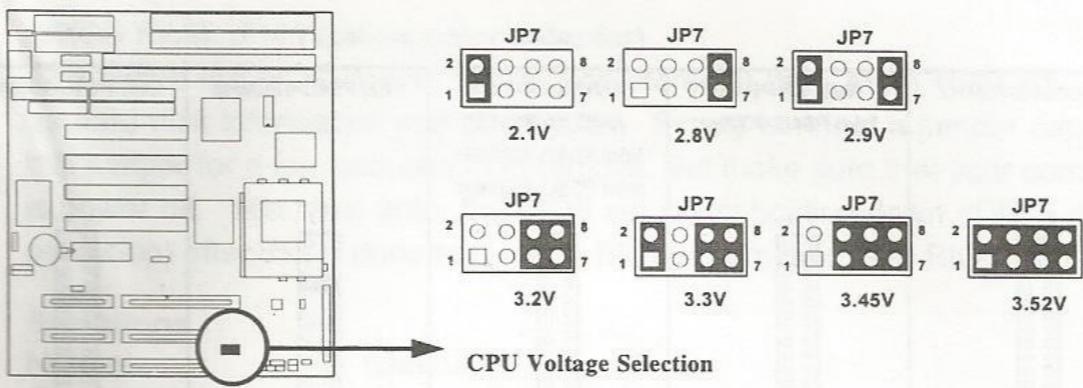
3. One Jumper Selection for CPU Type: JP6 (Blue color selector)

CPU TYPE	JP6	BUS FREQUENCY	CLOCK RATIO
Intel P54C-75MHz	1&2 short	50MHz	1.5x
Intel P54C-90MHz AMD K5 PR-90MHz	3&4 short	60MHz	1.5x
AMD K5 PR-100 AMD K5 PR-133 Intel P54C-100MHz Intel P55C-233MHz(MMX)	5&6 short	66MHz	1.5x
Intel P54C-120MHz	7&8 short	60MHz	2.0x
Intel P54C-133MHz	9&10 short	66MHz	2.0x
Intel P54C-150MHz Cyrix 6x86MX-PR166	11&12 short	60MHz	2.5x
Intel P54C-166MHz Intel P55C-166MHz(MMX) AMD K5 PR-166 AMD K6 PR2-166 Cyrix 6x86MX-PR200	13&14 short	66MHz	2.5x
Intel P54C-200MHz Cyrix 6x86MX-PR233 Intel P55C-200MHz(MMX) AMD K6 PR2-200	15&16 short	66MHz	3.0x
Cyrix 6x86-120+ IBM 6x86-120+	17&18 short	50MHz	2.0x
Cyrix 6x86-133+ IBM 6x86-133+	19&20 short	55MHz	2.0x
Cyrix 6x86-150+ IBM 6x86-150+	21&22short	60MHz	2.0x
Cyrix 6x86-166+ IBM 6x86-166+	23&24short	66MHz	2.0x
Cyrix 6x86-200+ IBM 6x86-200+	25&26 short	75MHz	2.0x
AMD K6 PR2-266	27&28 short	66MHz	3.0x 4.0X
AMD K6 PR2-300	29&30 short	66MHz	4.0x 4.5X

NOTE: Before install the CPU, Please check the CPU Frequency and Clock Ratio from your supplier.

Intel P54C-75MHz	AMD K5 PR-90 Intel P54C-90MHz	AMD K5 PR-100 AMD K5 PR-133 Intel P54C-100MHz Intel P55C-233MHz	Intel P54C-120MHz	Intel P54C-133MHz
1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30
Intel P54C-150MHz	Intel P54C-166MHz Intel P55C-166MHz AMD K5 PR-166 AMD K6 PR2-166	Intel P54C-200MHz Intel P55C-200MHz AMD K6 PR2-200	Cyrix 6x86-120[+] IBM 6x86-120[+]	Cyrix 6x86-133[+] IBM 6x86-133[+]
1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30
Cyrix 6x86-150[+] IBM 6x86-150[+]	Cyrix 6x86-166[+] IBM 6x86-166[+]	Cyrix 6x86-200[+] IBM 6x86-200[+]	AMD K6 PR2-266	AMD K6 PR2-300
1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30	1 2 ... 29 30
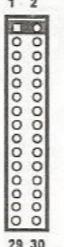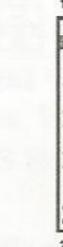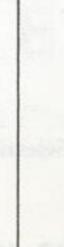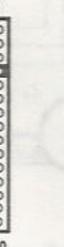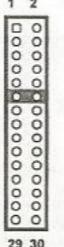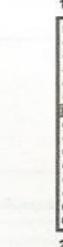
1 2

Intel 75Mhz	1-2 short
Intel 90Mhz	3-4 short
Intel 100Mhz	5-6 short
Intel 120Mhz	7-8 short
Intel 133Mhz	9-10 short
Intel 150Mhz	11-12 short
Intel 166Mhz	13-14 short
Intel 200Mhz	15-16 short
CYRIX 120+	17-18 short
CYRIX 133+	19-20 short
CYRIX 150+	21-22 short
CYRIX 166+	23-24 short
CYRIX 200+	25-26 short
AMD K6 PR2/266	27-28 short
AMD K6 PR2/300	29-30 short

29 30
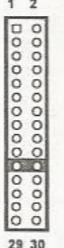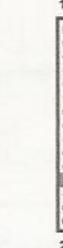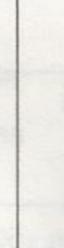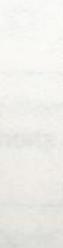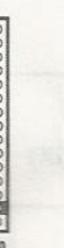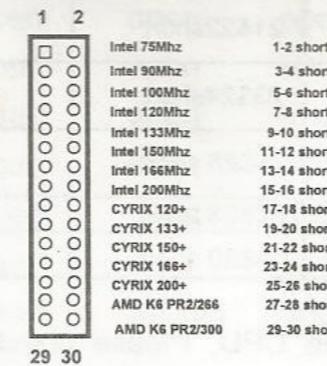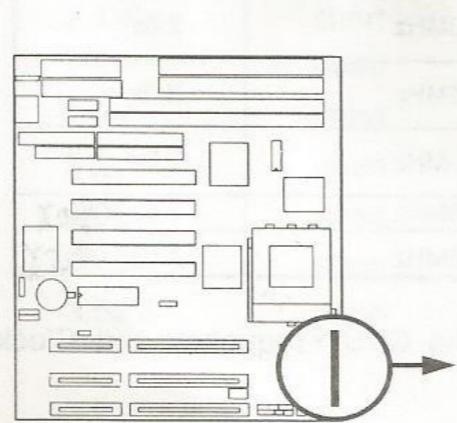
One Jumper Selection for CPU Type

4. **CMOS RAM: JP4 (Yellow color selector)**

This clears the user-entered information stored in the CMOS RAM chip such as hard disk information and passwords. Simply connect a jumper cap over this jumper for a few seconds then remove. But make sure that your computer is power off. You must enter the BIOS setup (by holding down <DEL> during power-up) after this is done to re-enter BIOS information (see BIOS SETUP)

Selections	JP4	
Normal	2-3	(Default)
Clear CMOS	3-4	(momentarily)

JP4 1 2 3 4   Normal   JP4 1 2 3 4   Clear CMOS

CMOS RAM (Normal / Clear CMOS Data)
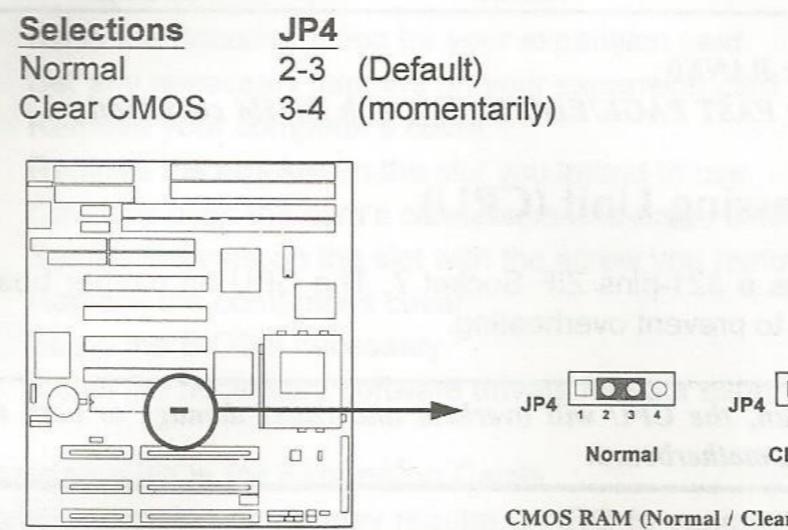
2-2-2 System Memory (DRAM)

This motherboard supports two 72-pin SIMMs of 4MB, 8MB, 16MB, 32MB, or 64MB to from a memory size between 8MB to 128MB. The DRAM can be either 60ns or 70ns Fast Page Mode or EDO RAM. This motherboard also suppport two 168-pin DIMM Module, it can use only +3V unbuffer synchronous DRAM.The Max. memory size is 256MB when use DIMM Module.

Install two memory modules each time as shown in the chart below.

BANK0		Total Memory Combination
SIMM 1	SIMM2	
4MB	4MB	8MB
8MB	8MB	16MB
16MB	16MB	32MB
32MB	32MB	64MB
64MB	64MB	128MB

DIMM1 (BANK 1)	DIMM2 (BANK 0)	Total Memory Combination
16MB	16MB	32MB
16MB	32MB	48MB
32MB	32MB	64MB
64MB	64MB	128MB
128MB	128MB	256MB

DIMM1: BANK1, DIMM2: BANK0
* We don't recommand use FAST PAGE/EDO Module with DIMM combination.

2-3 Central Processing Unit (CPU)

The motherboard provides a 321-pins ZIF Socket 7. The CPU on mother board must have a fan attached to prevent overheating.

> **WARNING:** *Without a fan, the CPU will overheat and cause damage to both the CPU and the motherboard.*

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree right angle. Insert the CPU with the white dot as your guide. The white dot should point towards the end of the level. The CPU has a corner pin for three of the four corners, the CPU will only fit in the one orientation as shown as follow. With the added weight of the CPU fan, no force is required to insert the CPU. Once completely inserted, hold down on the fan and close the socket's lever.

> **IMPORTANT:** *You must set jumpers JP6 "CPU One Jumper Setting" on and jumper JP7 "CPU I/O Voltage Selection" on page 4 depending on the CPU that you install.*

CPU ZIF Socket 7
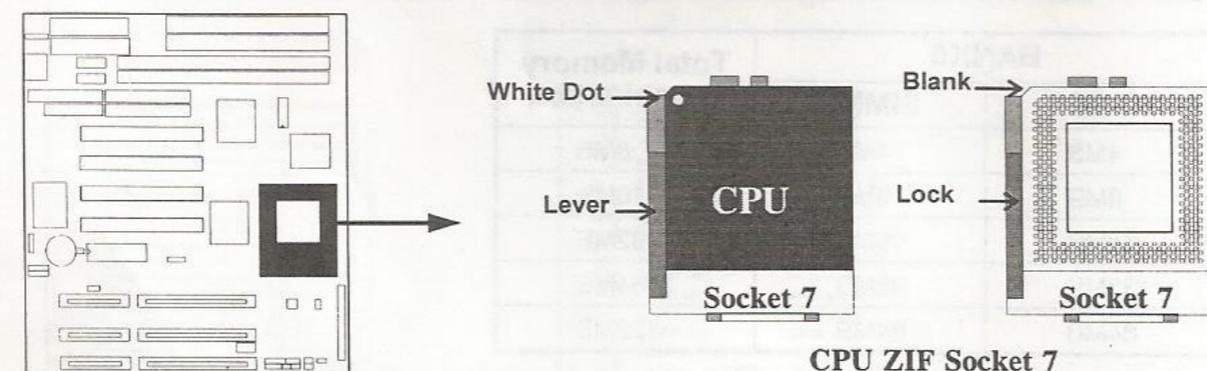
2-4 Expansion Cards

First read your expansion card documentation on any hardware and software settings that may be required to setup your specific card.

Installation Procedure:

1. Read the documentation for your expansion card.
2. Set any necessary jumpers on your expansion card.
3. Remove your computer's cover.
4. Remove the bracket on the slot you intend to use.
5. Carefully align the card's connectors and press firmly.
6. Secure the card on the slot with the screw you remove in step 4.
7. Replace the computer's cover.
8. Setup the BIOS if necessary.
9. Install the necessary software drivers for your expansion card.

Assigning IRQs for Expansion Cards

Some expansion cards may require an IRQ to operate. Generally an IRQ must be exclusively assigned to only one device. In an standard design there are 16 IRQs available but most of them are occupied by the system and leaves 6 free for expansion cards.

Either ISA or PCI expansion cards may require an IRQs. System IRQs are available to cards installed in the ISA expansion first, and any remaining IRQs can be used by PCI cards. Currently, there are two types of ISA cards. An original ISA expansion card design, know as "Legacy" ISA cards, they request configure the card's jumpers manually and then install it in any available slot on the ISA bus, and other know as Plug and Play. You may use Microsoft's Diagnostic (MSD.EXE) utility included in the DOS directory to see a map of your used and any free IRQs. For Windows 95 users, the "Control Panel" icon in "My Computer", contains a "System" icon which gives you "Device Manager" tab. Double clicking on a specific device give you "Resources" tab which shows the Interrupt number and address. Make sure that no any two of devices use the same IRQs, or your computer will experience problems when those two devices are in use at the same time.

To simplify this process the motherboard has complied with the Plug and Play (PNP) specification which was developed to allow automatic system configuration whenever a PNP-compliant card is added to the system. For PNP cards, IRQs are assigned automatically from those available.

If the system has both Legacy and PNP ISA cards installed, IRQs are assigned to PNP cards from those not used by Legacy cards. The PCI and PNP configuration of the BIOS setup utility can be used to indicate which IRQs are being used by Legacy cards. For older Legacy cards that does not work with the BIOS, you can contact your vendor for an ISA Configuration Utility.

An IRQ number is automatically assigned to PCI expansion cards after those used by Legacy and PNP ISA cards. In the PCI bus design, the BIOS automatically assigns an IRQ to a PCI. To install a PCI card, you need to set something called the INT (interrupt) assignment. Since all the PCI slots on this motherboard use an INTA #, be sure that the jumpers on your PCI cards are set to INT A.

Assigning DMA Channels for ISA Cards
Some ISA cards, both Legacy and PNP may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this motherboard are handled the same way as the IRQ assignment process described above. You can select a DMA channel in the PCI and PNP configuration section of the BIOS Setup utility. In the BIOS setup, you should choose "Yes" for those IRQ's and DMA's you wish to reserve for Legacy cards.

2-5   External Connectors

1.   **Power connector: AT Power Connector (12-pins block): JP1**
     This connector connects to a standard 5 Volt power supply. To connect the leads from the power supply, ensure first that the power supply is not plugged. Most power supplies provide two plugs (P8 and P9), each containing six wires, two of which are black. Orient the connectors so that the black wires are located in the middle.

     Using a slight angle, align the plastic guide pins on the lead to their receptacles on the connector. Once aligned, press the lead onto the connector until the lead locks into place.

Power Plugs from Power Supply

Power Connector on Motherboard
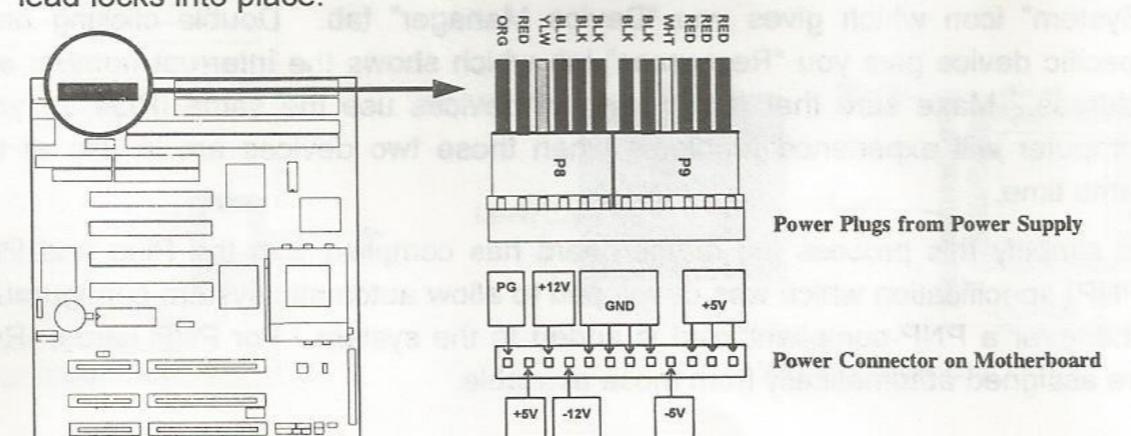
2. Power Connector: ATX Power Connector (20-pins block): J2

ATX Power Supply connector. This is a new defined 20-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

Pin 1 →

PIN	ROW2	ROW1
1	3.3V	3.3V
2	-12V	3.3V
3	GND	GND
4	Soft Power On	5V
5	GND	GND
6	GND	5V
7	GND	GND
8	-5V	Power OK
9	+5V	+5V (for Soft Logic)
10	+5V	+12V

ATX Power Connector
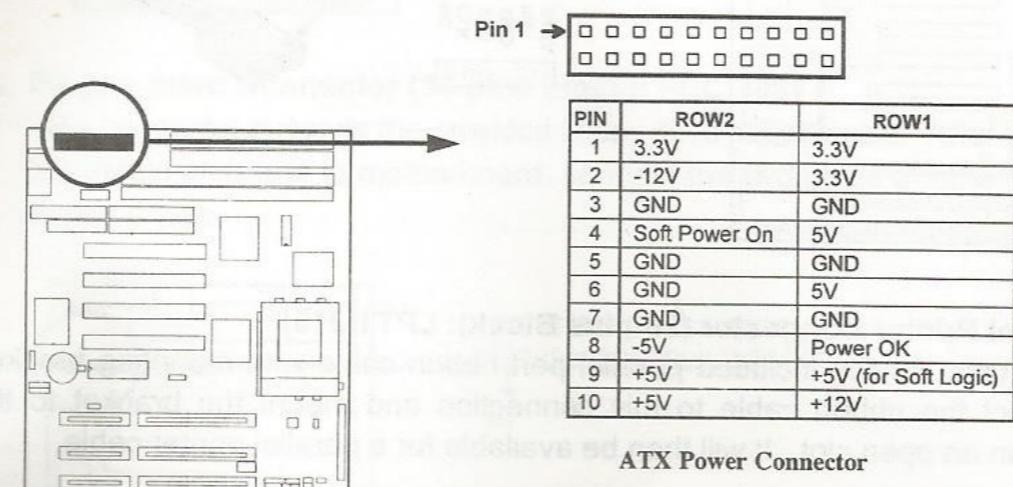
3. Keyboard Connector (5-pins female): J5

This connection is for a standard IBM-compatible keyboard. May also be known as a 101 enhanced keyboard.

Keyboard Connector (5-pins female)

Connector Plug from Keyboard
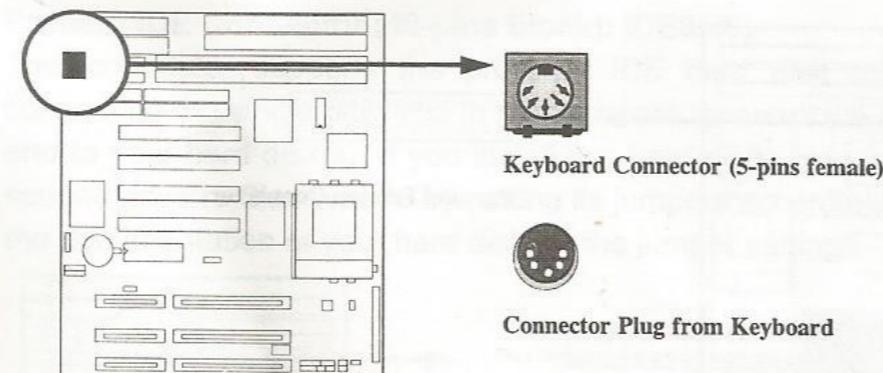
4. PS/2 Mouse Connector (6-pins block): J1

If you are using a PS/2 mouse, you must purchase an optional PS/2 mouse set which connects to the 6-pins block and mounts to an open slot on your computer's case.

6: NC
5: CLK
4: VCC
3: GND
2: NC
1: DATA

PIN 1

PS/2 Mouse Module Connector
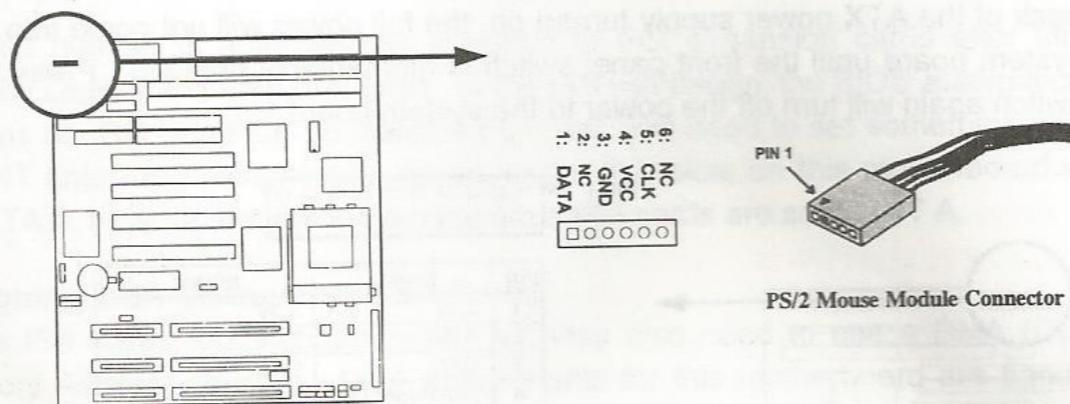
5. Parallel Printer Connector (26-pins Block): LPT1(J10)

Connection for the included parallel port ribbon cable with mounting bracket. Connect the ribbon cable to this connection and mount the bracket to the case on an open slot. It will then be available for a parallel printer cable.

> Note: Serial printers must be connected to the serial port. You can enable the parallel port and choose the IRQ through BIOS Setup on page 30 "Onboard Parallel Port".

Pin 1 →

Parallel Printer Connector
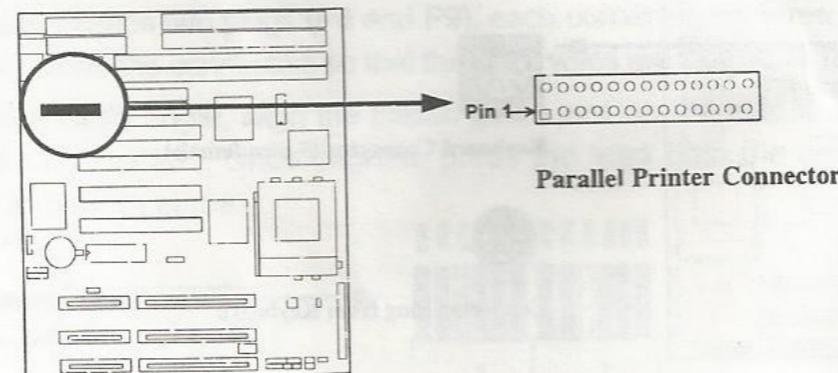
6. Serial port COMA and COMB Connector (Two 10-pins blocks): COM1(J7) ,COM2(J6)

These connectors support the provided serial port ribbon cables with mounting bracket. Connect the ribbon cables to these connectors and mount the bracket to the case on an open slot. The two serial ports on the mounting bracket will then be used for pointing devices or other serial devices. See page 30 for BIOS configuration of "Onboard Serial Port"

Pin 1 → COM2

Pin 1 → COM1

Serial Port COMA & COMB Connector
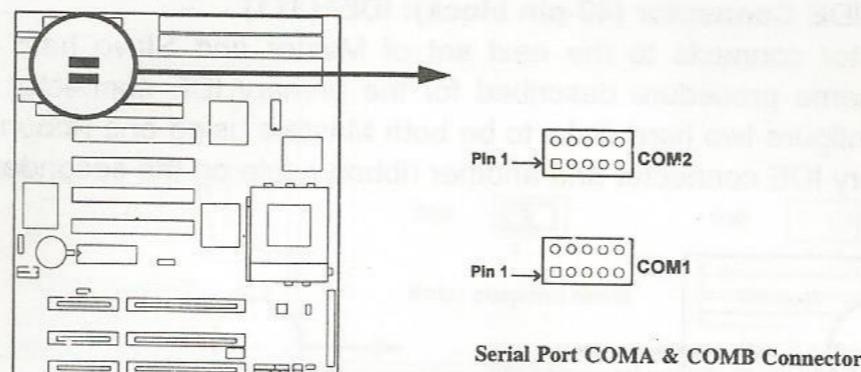
7. Floppy drive Connector (34-pins block): FDC. (J8)

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.

Pin 1

Floppy Drive Connector
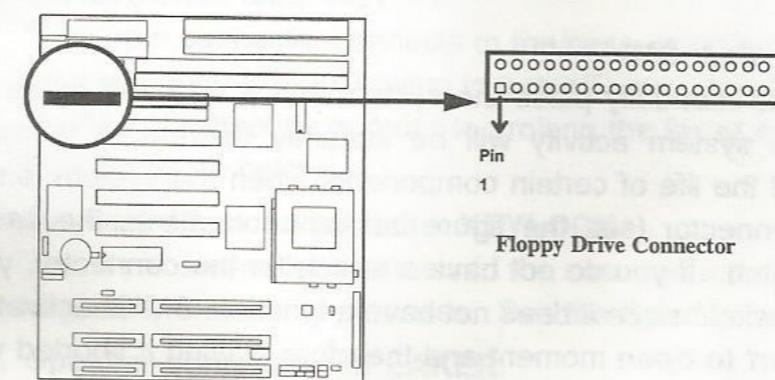
8. Primary IDE Connector (40-pins block): IDE0(J9)

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.

Pin 1 ←

Primary IDE Connector
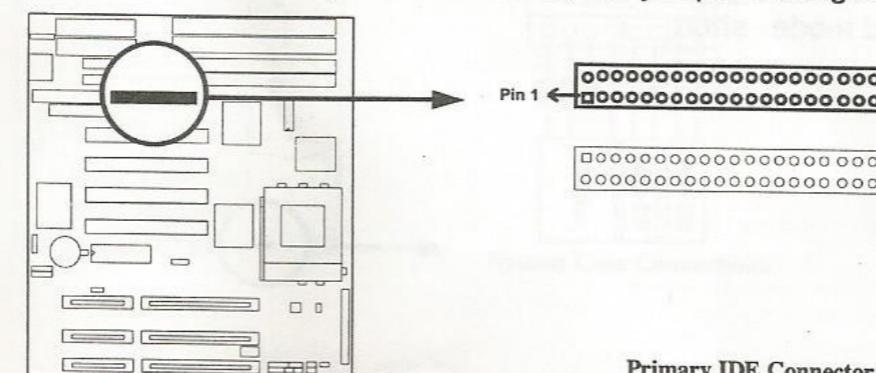
9. Secondary IDE Connector (40-pin block): IDE1(J11)

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.

Pin 1

Secondary IDE Connector
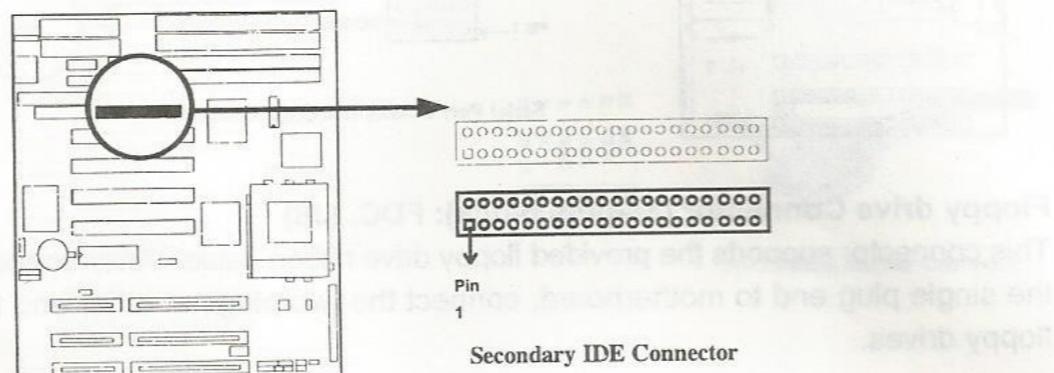
10. SMI suspend switch lead: SMI

This allows the user to manually place the system into a suspend mode or "Green" mode where system activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure below) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the "Turbo Switch" since it does not have a function. SMI is activated when it detects a *short to open* moment and therefore leaving it shorted will not cause any problems. May require one or two pushes depending on the position of the switch. Wake-up can be controlled by settings in the BIOS but the keyboard will always allow wake-up (the SMI lead cannot wake-up the system). If you want to use this connector, "Suspend Switch" in the POWER MANAGEMENT SETUP of the BIOS software should be on the default setting of *Enable* (see page 25).

Selections	SMI
Enter suspend mode	short
Normal	open

SMI ⬛ Enter suspend mode
2 1

SMI ☐ Normal
2 1

SMI suspend switch lead
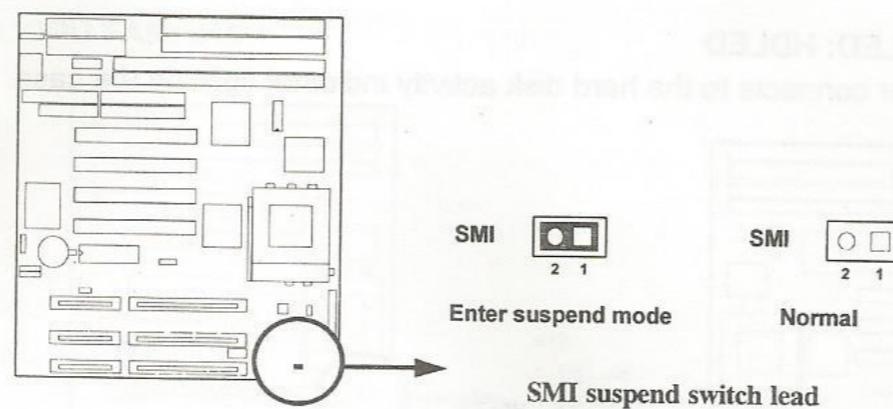
11. Turbo LED switch: TB LED

The motherboard's turbo function is always on. The turbo LED will remain constantly lit while the system power is on. You may wish to connect the Power LED from the system case to this lead. See the figure on page 15.

12. Reset switch lead: RST

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply. See the figure below.

13. Keyboard lock switch lead: KEYLOCK

This 5-pin connector connects to the case-mounted key switch for locking the keyboard for security purposes. See the figure below.

14. Speaker connector: SPEAKER

This 4-pin connector connects to the case-mounted speaker. See the figure below.

System Case Connections
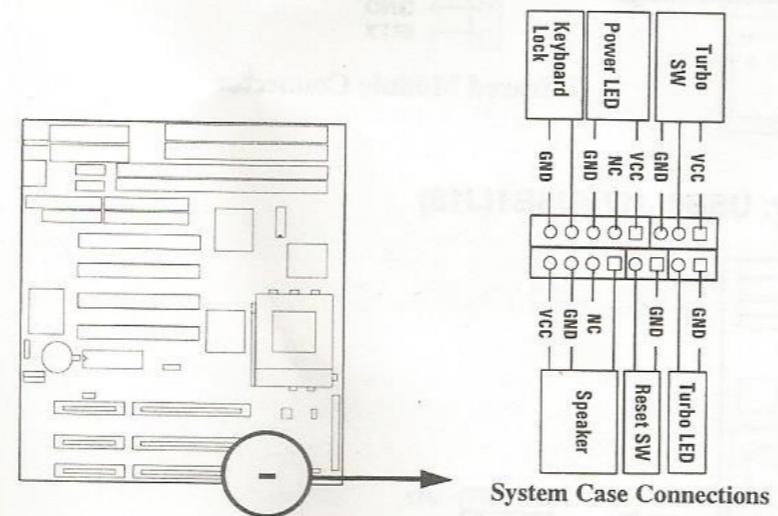
15. IDE activity LED: HDLED

This connector connects to the hard disk activity indicator light on the case.

HDLED

IDE (Hard Drive) LED
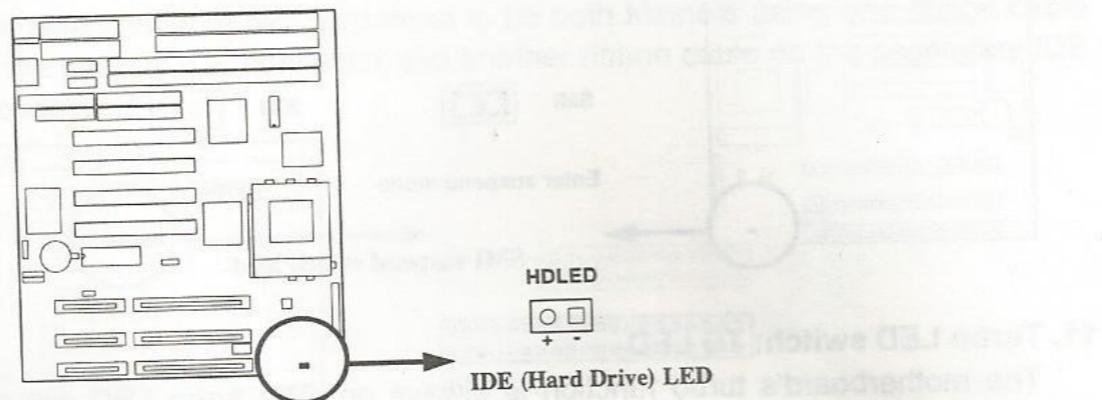
16. IR infrared module connector: IR(J16)

This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to small opening on system cases that support this feature you must also configure the setting through BIOS setup. Use the four pins as shown on the Back View and connect a ribbon cable from the module to the motherboard according to the pin definitions.

J16

→ VCC
→ N.C
→ IRRX
→ GND
→ IRTX

Infrared Module Connector
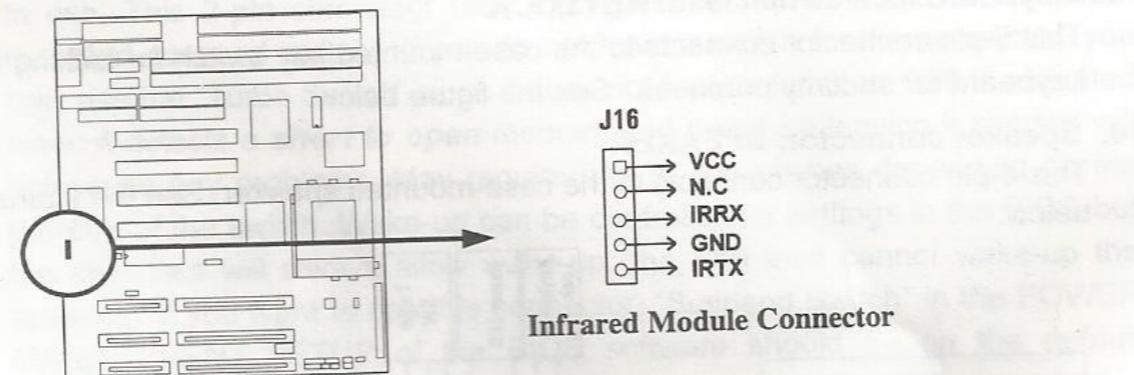
17. USB Port connector: USB0(J17)/USB1(J18)

J17
J18

1   5

USB Port connector

18. CPU FAN: J19

J19

1 ☐ GND
2 ☐ 12V
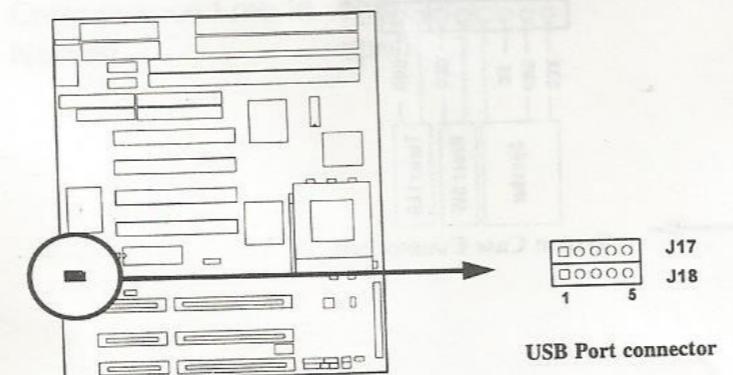
CPU FAN
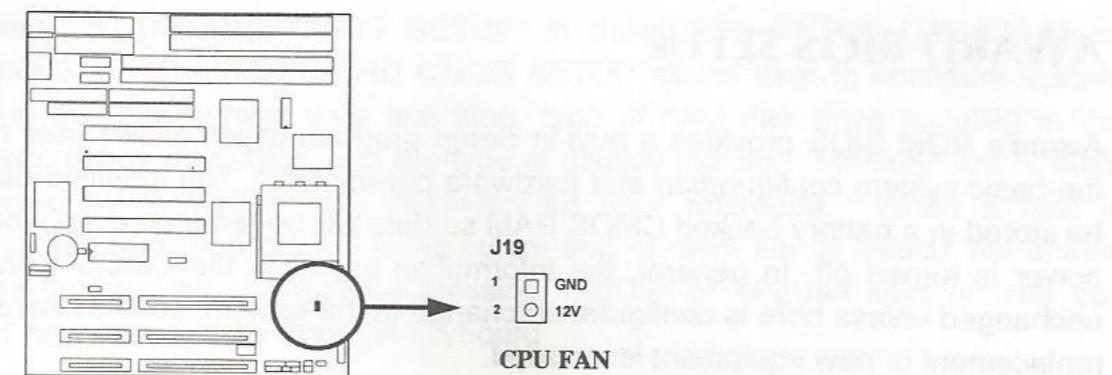
19. Power-On button connector: J20

J20

2 ☐ 1

PS-ON
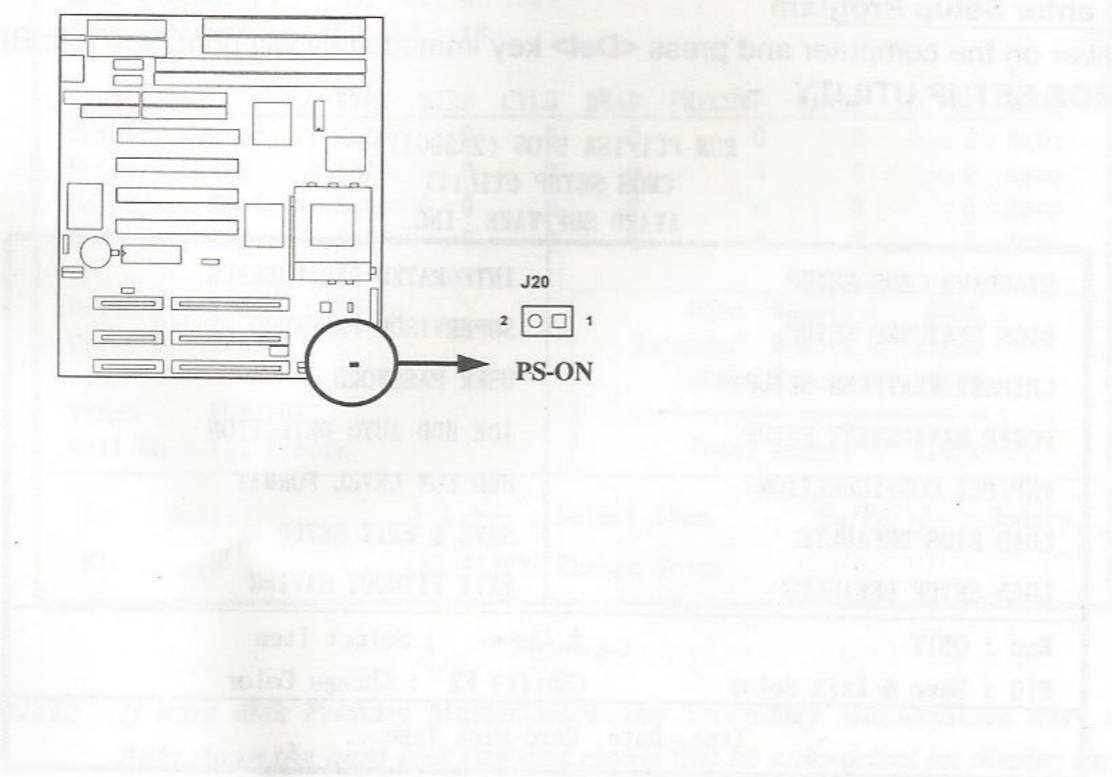
Chapter 3

AWARD BIOS SETUP

Award's ROM BIOS provides a built-in Setup program which allows user modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless here is configuration change in the system, such as hard drive replacement or new equipment is installed.

It is possible that CMOS had a battery failure which cause data lose in CMOS_RAM. If so, re_enter system configuration parameters become necessary.

To enter Setup Program
Power on the computer and press **\<Del>** key immediately will bring you into BIOS **CMOS SETUP UTILITY**.

```
              ROM PCI/ISA BIOS (2A59GJ19)
                    CMOS SETUP UTILITY
                   AWARD SOFTWARE, INC.
┌─────────────────────────────┬─────────────────────────────┐
│ STANDARD CMOS SETUP          │ INTEGRATED PERIPHERALS       │
│ BIOS FEATURES SETUP          │ SUPERVISOR PASSWORD          │
│ CHIPSET FEATURES SETUP       │ USER PASSWORD                │
│ POWER MANAGEMENT SETUP       │ IDE HDD AUTO DETECTION       │
│ PNP/PCI CONFIGURATION        │ HDD LOW LEVEL FORMAT         │
│ LOAD BIOS DEFAULTS           │ SAVE & EXIT SETUP            │
│ LOAD SETUP DEFAULTS          │ EXIT WITHOUT SAVING          │
├─────────────────────────────┴─────────────────────────────┤
│ Esc : QUIT                    ↑↓→←    : Select Item         │
│ F10 : Save & Exit Setup      (Shift) F2 : Change Color      │
├────────────────────────────────────────────────────────────┤
│              Time, Date, Hard Disk Type...                 │
└────────────────────────────────────────────────────────────┘
```

Figure 3-1

The menu displays all the major selection items and allow user to select any one of shown item. The selection is made by moving cursor (press any direction key) to the item and press \<Enter> key. An on_line help message is displayed at the bottom of the screen as cursor is moving to various items which provides user better understanding of each function. When a selection is made, the menu of selected item will appear so the user can modify associated configuration parameters.

3-1 STANDARD CMOS SETUP

Choose **"STANDARD CMOS SETUP"** in the CMOS SETUP UTILITY Menu (Figure 3-1). The STANDARD CMOS SETUP allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor. Memory size is auto-detected by the BIOS and displayed for your reference.   When a field is highlighted (direction keys to move cursor and <Enter> key to select), the entries in the field will be changed by pressing <PgDn> or <PgUp> keys or user can enter new data directly from the keyboard.

```
                      ROM PCI/ISA BIOS (2A59GJ19)
                          STANDARD CMOS SETUP
                          AWARD SOFTWARE, INC.
 ┌──────────────────────────────────────────────────────────────────────┐
 │ Date (mm:dd:yy) : Tue, Jul, 01 1997                                    │
 │ Time (hh:mm:ss) : 15 : 43 : 18                                         │
 │                                                                        │
 │ HARD DISKS        TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE  │
 │ Primary Master  : Auto   0     0     0      0       0       0     Auto  │
 │ Primary Slave   : Auto   0     0     0      0       0       0     Auto  │
 │ Secondary Master: Auto   0     0     0      0       0       0     Auto  │
 │ Secondary Slave : Auto   0     0     0      0       0       0     Auto  │
 │                                                                        │
 │ Drive A : 1.2M , 5.25 in.       ┌────────────────────────────────┐     │
 │ Drive B : None                  │  Base   Memory :   640K         │     │
 │                                 │  Extended Memory :  7168K        │     │
 │                                 │  Other  Memory :   384K         │     │
 │ Video   : EGA/VGA               ├────────────────────────────────┤     │
 │ Halt On : All Errors            │  Total Memory :   8192K          │     │
 │                                 └────────────────────────────────┘     │
 ├──────────────────────────────────────────────────────────────────────┤
 │  Esc : Quit          ↑ ↓ → ← : Select Item      Pu/Pd/+/- : Modify    │
 │  F1  : Help          (Shift)F2: Change Color                           │
 └──────────────────────────────────────────────────────────────────────┘
```

Figure 3-2

NOTE: If hard disk Primary Master/Slave and Secondary Master/Slave were used Auto, than the hard disk size and model will be auto-detect on display during POST.

NOTE: The "Halt On:" field is to determine when to halt the system by the BIOS is error occurred during POST.

3-2 BIOS FEATURES SETUP

Select the "**BIOS FEATURES SETUP**" option in the CMOS SETUP UTILITY menu allows user to change system related parameters in the displayed menu. This menu shows all of the manufacturer's default values of J-5TXBR2. Again, user can move the cursor by pressing direction keys and <PgDn> of <PgUp> keys to modify the parameters. Pressing [F1] key to display help message of the selected item.

This setup program also provide 2 convinent ways to load the default parameter data from BIOS [F6] or CMOS [F7] area if shown data is corrupted. This provides the system a capability to recover from any possible error.

```
                    ROM PCI/ISA BIOS (2A59GJ19)
                        BIOS FEATURES SETUP
                        AWARD SOFTWARE, INC.

 ┌──────────────────────────────────────┬──────────────────────────────────────┐
 │ Virus Warning          : Disabled    │ Video  BIOS Shadow     : Enabled      │
 │ CPU Internal Cache     : Enabled     │ C8000-CBFFF Shadow     : Disabled     │
 │ External Cache         : Enabled     │ CC000-CFFFF Shadow     : Dsiabled     │
 │ Quick Power On Self Test : Disabled  │ D0000-D3FFF Shadow     : Disabled     │
 │ Boot Sequence          : A,C,SCSI    │ D4000-D7FFF Shadow     : Disabled     │
 │ Swap Floppy Drive      : Disabled    │ D8000-DBFFF Shadow     : Disabled     │
 │ Boot Up Floppy Seek    : Enabled     │ DC000-DFFFF Shadow     : Dsiabled     │
 │ Boot Up Numlock Status : On          │                                       │
 │ Boot Up System Speed   : High        │                                       │
 │ Gate A20 Option        : Fast        │                                       │
 │ Typematic Rate Setting : Disabled    │                                       │
 │ Typematic Rate (Chars/Sec) : 6       │                                       │
 │ Typematic Delay (Msec) : 250         │                                       │
 │ Security Option        : Setup       ├──────────────────────────────────────┤
 │ PCI/VGA Palette Snoop  : Disabled    │ Esc: Quit    ↑↓→←  : Select Item      │
 │ OS Select For DRAM > 64MB : Non-OS2  │ F1 : Help         Pu/Pd/+/-:Modify    │
 │                                      │ F5 : Old Values   (Shift)F2 : Color   │
 │                                      │ F6 : Load BIOS Defaults               │
 │                                      │ F7 : Load Setup Defaults              │
 └──────────────────────────────────────┴──────────────────────────────────────┘
```

Figure 3-3

Note: *The Security Option contains "setup" and "system". The "setup" indicates that the password setting is for CMOS only while the "system" indicates the password setting is for both CMOS and system boot up procedure.*

- **Virus Warning:** This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem. Default value is Disabled

  Enabled: Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

  Disabled: No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

- **CPU Internal Cache / External Cache:** These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is Enable. If your CPU without Internal Cache then this item "CPU Internal Cache" will not be show.

  Enabled: Enable cachehis category speeds up Power On Self Test. (POST) after you power on the computer.

  Disabled: Disable cache

- **Quick Power On Self Test:** If it is set to Enable, BIOS will shorten or skip some check items during POST.

  Enabled: Enable quick POST

  Disabled: Normal POST

- **Boot Sequence:** This category determines which drive computer searches first for the DOS (Disk Operating System). Default value is A,C,SCSI. System will first search for floppy disk drive, then hard disk drive and then SCSI device. The options are: C, A, SCSI; C, CDROM, A; CDROM, C, A; D, A, SCSI; E, A, SCSI; F, A, SCSI; SCSI, A, C; SCSI, C, A; C only; LS/ZIP, C.

- **Swap Floppy Drive:** The swap floppy drive. Default value is Disabled.

  Enabled: Floppy A & B will be swapped under the DOS

  Disabled: Floppy A & B will be not swap

- **Boot Up Floppy Seek:** During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. The default value is Enabled.

  Enabled: BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks.

  Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.

Disabled: BIOS will not search for the type of floppy disk drive by track
          number.
          Note that there will not be any warning message if the drive
          installed is 360K.

- **Boot Up NumLock Status:** The default value is On.
  On: Keypad is number keys.
  Off: Keypad is arrow keys.

- **Boot UP System Speed:** It selects the default system speed-the speed that
  the system will run at immediately after power up.
  High: Set the speed to high.
  Low: Set the speed to low.

NOTE: The board default value is LOW in the field. Boot the system to controller
turbo or De-turbo by Onboard (Turbo Switch).

- **Gate A20 Option:** The default value is Fast.
  Normal: The A20 signal is controlled by keyboard controller or chipset
            hardware.
  Fast: Default: Fast. The A20 signal is controlled by Port 92 or chipset
          specific method.

- **Typematic Rate Setting:** This determines the typematic rate.
  Enabled: Enable typematic rate and typematic delay programming.
  Disabled: Disable typematic rate and typematic delay programming. The
            system BIOS will use default value of this 2 items and the default
            is controlled by keyboard.

- **Typematic Rate (Chars/Sec):**

6 : 6 characters per second	8 : 8 characters per second
10 : 10 characters per second	12 : 12 characters per second
15 : 15 characters per second	20 : 20 characters per second
24 : 24 characters per second	30 : 30 characters per second

- **Typematic Delay (Msec):** When holding a key, the time between the first
  and second character displayed.

250 :	250 msec
500 :	500 msec
750 :	750 msec
1000 :	1000 msec

- **Security Option:** This category allows you to limit access to the system and Setup, or just to Setup. The default value is Setup.

  System: The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

  Setup: The system will boot, but access to Setup will be denied if the incorrect password is entered at the prompt.

> *NOTE:* *To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.*

- **Video BIOS Shadow:** It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

  Enabled: Video shadow is enabled

  Disabled: Video shadow is disabled

- C8000 - CBFFF Shadow:
  CC000 - CFFFF Shadow:
  D0000 - D3FFF Shadow:
  D4000 - D7FFF Shadow:
  D8000 - DBFFF Shadow:
  DC000 - DFFFF Shadow:

  These categories determine whether optional ROM will be copied to RAM by 16K byte or 32K byte per/unit and the size depends on chipset.

  Enabled: Optional shadow is enabled.

  Disabled: Optional shadow is disabled.

3-3   CHIPSET FEATURES SETUP

Choose the "**CHIPSET FEATURES SETUP**" in the CMOS SETUP UTILITY menu to display following menu.

```
ROM PCI/ISA BIOS (2A59GJ19)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

┌─────────────────────────────────────────────┬──────────────────────────────────┐
│ Auto Configuration        : Enabled          │                                  │
│ DRAM Timing               : 70 ns            │                                  │
│                                              │                                  │
│ DRAM Lead off Timing      : 10/6/4           │                                  │
│ DRAM Read Burst (EDO/FP)  : x333/x444        │                                  │
│ DRAM Write Burst Timing   : x333             │                                  │
│ Fast EDO Lead Off         : Disabled         │                                  │
│ Refresh RAS# Assertion    : 5 Clks           │                                  │
│ Fast RAS To CAS Delay     : 3                │                                  │
│ DRAM Page Idle Timer      : 2 Clks           │                                  │
│ DRAM Enhanced Paging      : Enabled          │                                  │
│ Fast MA to RAS# Delay     : 2 Clks           │                                  │
│ SDRAM (CAS Lat/RAS-to-CAS): 3/3              │                                  │
│ SDRAM Speculative Read    : Disabled         │                                  │
│ System BIOS Cacheable     : Enabled          │                                  │
│ Video BIOS Cacheable      : Enabled          │                                  │
│ 8 Bit I/O Recovery Time   : 1                │                                  │
│ 16 Bit I/O Recovery Time  : 2                │                                  │
│ Memory Hole At 15M-16M    : Disabled         │                                  │
│ PCI 2.1 Compliance        : Disabled         │ Esc: Quit    ↑↓→←: Select Item   │
│                                              │ F1 : Help       Pu/Pd/+/-:Modify │
│                                              │ F5 : Old Values  (Shift)F2: Color│
│                                              │ F6 : Load BIOS Defaults          │
│                                              │ F7 : Load Setup Defaults         │
└─────────────────────────────────────────────┴──────────────────────────────────┘
```

Figure 3-4

- **DRAM Timing:** The default value is 60ns.

    60ns : 2 (faster) Burst Wait State, for 60~70ns Fast Page Mode/EDO DRAM.

    70ns : 3 (slower) Burst Wait State, for 70ns Fast Page Mode/EDO DRAM.

- **Video BIOS Cacheable:** The default value is Enabled.

    Enabled: This field Enabled the Video BIOS Cacheable to speed up to VGA Performance.

    Disabled: Disabled the Video BIOS Cacheable function.

- **8/16 Bit I/O Recovery Time:** The default value is 1.

    8 Bit I/O Recovery Time: This field defines the recovery time from 1 to 8 for 8-bit I/O.

16 Bit I/O Recovery Time: To define the recovery time from 1 to 4 for 16-bit I/O.

- **Memory Hole At 15M~16M:**The default value is Disabled.

  Disabled: Normal Setting.

  Enabled: This field enableds the main memory (15~16MB) remap to ISA BUS.

3-4 POWER MANAGEMENT SETUP

Choose the "**POWER MANAGEMENT SETUP**" in the CMOS SETUP UTILITY to display the following screen. This menu allows user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it's absolutely necessary.

```
                  ROM PCI/ISA BIOS (2A59GJ19)
                    POWER MANAGEMENT SETUP
                    AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────────────┐
│ Power Management    : Disabled    ** Reload Global Timer Events **   │
│ PM Control by APM   : Yes         IRQ [3-7, 9-15], NMI : Enabled     │
│ Video Off Method    : V/H SYNC+Blank  Primary IDE 0       : Disabled │
│                                   Primary IDE 1       : Disabled     │
│ Video Off After     : Stand by    Secondary IDE 0     : Disabled     │
│ MODEM Use IRQ       : 3           Secondary IDE 1     : Disabled     │
│                                   Floppy Disk         : Disabled     │
│ Throttle Duty Cycle : 62.5%       Serial Port         : Enabled      │
│ ZZ Active in Suspend : Disabled   Parallel Port       : Disabled     │
│ VGA Active Monitor  : Enabled                                        │
│ Soft-Off by PWR-BTTN : Delay 4 Sec.                                  │
│ CPUFAN Off In Suspend : Enabled                                      │
│ Resume by Ring      : Disabled                                       │
│ Resume by Alarm     : Disabled                                       │
│                                   ┌─────────────────────────────────┐│
│ IRQ 8 Break Suspend : Disabled    │ Esc: Quit      ↑↓→←: Select Item││
│                                   │ F1 : Help      Pu/Pd/+/-: Modify││
│                                   │ F5 : Old Values  (Shift)F2 : Color││
│                                   │ F6 : Load BIOS Defaults          ││
│                                   │ F7 : Load Setup Defaults         ││
└─────────────────────────────────────────────────────────────────────┘
```

Figure 3-5

Again, user can move the cursor by pressing direction keys to the field need to be modified and press <PgDn> or <PgUp> to alter item selection. You can only change the content of Doze Mode, Standby Mode, and Suspend Mode when the Power Management is set to 'User Define'.

3-4-1 The Description of the Power Management

- **Power Management mode selection:**

  Disabled: The system operates in NORMAL conditions (Non-GREEN), and the Power Management function is disabled.

  Max.saving: This mode will maximize the power saving capability.

  Min.saving: This mode will minimize the power saving capability.

  User define: Allow user to define timeout parameters to control power saving timing. Refer item shown below:

- **Timeout parameters:**

HDD Standby

HDD Standby timer can be set from 1 to 15 minute(s).

System Doze

The "System Doze" mode timer starts to count when there is no "PM events" occurred. The valid timeout setting is from 1 minute up to 1 hour.

System Standby

The "Standby" mode timer starts to count when "System Doze" mode timer timed out and no "PM events" occurred. Valid range is from 1 minute up to 1 hour.

System Suspend

This function works only when the Pentium CPU is installed. The timer starts to count when "System Standby" mode timer timed out and no "PM Events" occurred. Valid range is from 1 minute up to 1 hour.

3-4-2 Description of the Green Functions

The J-5TXBR2 supports HDD Power Down, Doze and standby power saving functions when Intel Pentium Processor CPU is installed. The suspend function is also supported when the SMI switch is short (ref. page 15). The detail description of these functions are provided as following:

HDD Standby Mode
When system stop reading or writing HDD, the timer starts to count. The system will cut off the HDD power when timer ran out of time. The system will not resume operation until either a read from or a write to HDD command is executed again.

Doze Mode
The system hardware will drop down CPU clock from normal working speed when Doze mode timeout occurred.

Standby Mode
When the system standby mode timer ran out, it will enter the standby mode and retain CPU at slow working speed. The screen will be blanked out.

Suspend Mode
When the system suspend timer time out, the system will enter the suspend mode and the chipset will stop CPU clock immediately. The power consuption in Suspend Mode is lower than in standby mode. The screen is also blanked out.

PM Events:
AWARD BIOS defines 15 PM Events in the power management mode (Doze, standby & suspend). The user can initial any PM Events to be "Enable" or "Disable". When the system detects all of the enabled events do not have any activity, it will start the system Doze timer first if the "Power Management" isn't "Disabled". Once the system Doze timer timed out, it will process doze power saving procedure by starting the system standby timer. When the standby timer ran out and all of the "Enabled" events remains silent, the system will enter the standby mode. By now, the system will not only process the standby power saving procedures but also start the system suspend timer. When the suspend timer time out, all of the CPU clock will be stopped by dropping system clock down to zero and remains this way until any one of the "Enabled" event occurred.

3-5 PNP/PCI CONFIGURATION SETUP

This "PNP and PCI configuration Setup" option configures the PCI bus slots. All PCI bus slots on the system use INTA#, thus all installed PCI cards must be set to this value.

```
                 ROM PCI/ISA BIOS (2A59GJ19)
                  PNP/PCI CONFIGURATION SETUP
                    AWARD SOFTWARE, INC.
┌─────────────────────────────────────┬──────────────────────────────────┐
│ PNP OS Installed       : No          │ PCI IDE IRQ Map To  : PCI-AUTO    │
│ Resources Controlled By : Manual     │ Primary   IDE INT#  : A           │
│ Reset Configuration Data: Disabled   │ Secondary IDE INT#  : B           │
│                                      │                                   │
│ IRQ-3  assigned to : Legacy ISA      │ Used MEM Base Addr  : N/A         │
│ IRQ-4  assigned to : Legacy ISA      │                                   │
│ IRQ-5  assigned to : PCI/ISA PnP     │                                   │
│ IRQ-7  assigned to : PCI/ISA PnP     │                                   │
│ IRQ-9  assigned to : PCI/ISA PnP     │                                   │
│ IRQ-10 assigned to : PCI/ISA PnP     │                                   │
│ IRQ-11 assigned to : PCI/ISA PnP     │                                   │
│ IRQ-12 assigned to : PCI/ISA PnP     │                                   │
│ IRQ-14 assigned to : PCI/ISA PnP     │                                   │
│ IRQ-15 assigned to : PCI/ISA PnP     │                                   │
│ DMA-0  assigned to : PCI/ISA PnP     │                                   │
│ DMA-1  assigned to : PCI/ISA PnP     │                                   │
│ DMA-3  assigned to : PCI/ISA PnP     │                                   │
│ DMA-5  assigned to : PCI/ISA PnP     ├───────────────────────────────────┤
│ DMA-6  assigned to : PCI/ISA PnP     │                                   │
│ DMA-7  assigned to : PCI/ISA PnP     │ Esc: Quit    ↑ ↓ → ←: Select Item │
│                                      │ F1 : Help         Pu/Pd/+/-:Modify│
│                                      │ F5 : Old Values   (Shift)F2 : Color│
│                                      │ F6 : Load BIOS Defaults           │
│                                      │ F7 : Load Setup Defaults          │
└─────────────────────────────────────┴───────────────────────────────────┘
```

Figure 3-6

IRQxx assigned to

These fields indicate whether or not the displayed IRQ for each field is being used by a Legacy (non-PnP) ISA card. Two options are available: "PCI/ISA PnP" and "Legacy ISA". The first option the default value, indicates either that the displayed IRQ is not used or an PCI/ISA PnP is being used to determine if an ISA card is using that IRQ. Second option is for Legacy ISA card that requires a unique IRQ, and you are not using an PCI/ISA PnP, you must set the field for that IRQ to Legacy ISA.

For example: If you install a Legacy ISA card that requires IRQ10 lets say, then set "IRQ10 assigned to Legacy ISA".

DMAxx assigned to

These fields indicate whether or not the displayed DMA channel for each field is being used by a Legacy (non-PnP) ISA card. Available options include: "PCI/ISA PnP" and "Legacy ISA". When is option "PCI/ISA PnP" indicates either that the displayed DMA channel is not used or an PCI/ISA PnP being used to determine if an ISA card is using that channel. If you install a Legacy ISA card that requires a unique DMA channel, and you are not using an PCI/ISA PnP, you must set the field for that channel to "Legacy ISA".

3-6 LOAD BIOS DEFAULTS

The "**LOAD BIOS DEFAULTS**" function loads the system default data directly from ROM and initialize associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

```
                    ROM PCI/ISA BIOS (2A59GJ19)
                         CMOS SETUP UTILITY
                        AWARD SOFTWARE, INC.
  ┌─────────────────────────────────┬─────────────────────────────────┐
  │  STANDARD CMOS SETUP             │  INTEGRATED PERIPHERALS          │
  │                                  │                                  │
  │  BIOS FEATURES SETUP             │  SUPERVISOR PASSWORD             │
  │                                  │                                  │
  │  CHIPSET FEATURES SETUP          │  USER PASSWORD                   │
  │                                  │                                  │
  │  POWER MANAGEMENT      Load BIOS Default (Y/N)? Y    TECTION        │
  │                                                                     │
  │  PNP/PCI CONFIGURA                              ORMAT               │
  │                                  │                                  │
  │  LOAD BIOS DEFAULTS              │  SAVE & EXIT SETUP               │
  │                                  │                                  │
  │  LOAD SETUP DEFAULTS             │  EXIT WITHOUT SAVING             │
  ├─────────────────────────────────┴─────────────────────────────────┤
  │  Esc : QUIT                      ↑ ↓ → ←    : Select Item          │
  │  F10 : Save & Exit Setup         (Shift) F2  : Change Color        │
  ├─────────────────────────────────────────────────────────────────── │
  │             Time, Date, Hard Disk Type...                          │
  └─────────────────────────────────────────────────────────────────── ┘
```
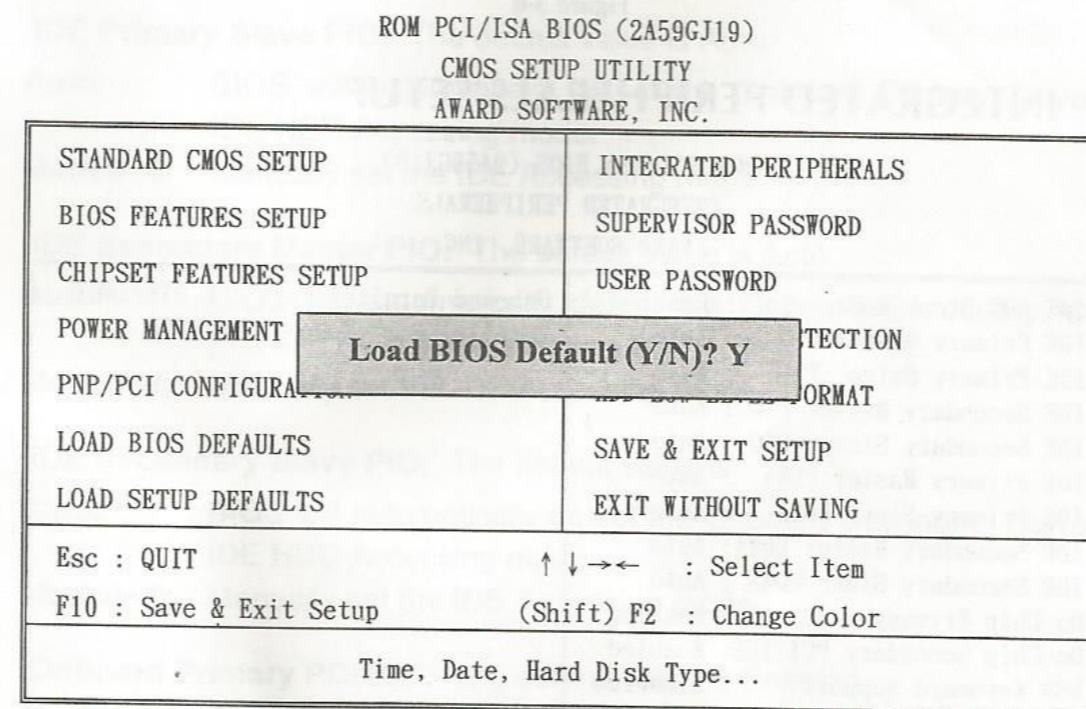
Figure 3-7

3-7 LOAD SETUP DEFAULTS

The "**LOAD SETUP DEFAULTS**" function loads the system default data directly from ROM and initialize associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

```
                    ROM PCI/ISA BIOS (2A59GJ19)
                       CMOS SETUP UTILITY
                      AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────────┐
│  STANDARD CMOS SETUP            INTEGRATED  PERIPHERALS            │
│                                                                   │
│  BIOS FEATURES SETUP           SUPERVISOR PASSWORD                │
│                                                                   │
│  CHIPSET FEATURES SETUP        USER PASSWORD                      │
│                                                            TECTION│
│  POWER MANAGEMENT      ┌──────────────────────────────┐          │
│                        │  Load SETUP Default (Y/N)? Y  │          │
│  PNP/PCI CONFIGURA     └──────────────────────────────┘   ORMAT  │
│                                                                   │
│  LOAD BIOS DEFAULTS            SAVE & EXIT SETUP                  │
│                                                                   │
│  LOAD SETUP DEFAULTS           EXIT WITHOUT SAVING                │
├─────────────────────────────────────────────────────────────────┤
│  Esc : QUIT                    ↑ ↓ → ←  : Select Item             │
│  F10 : Save & Exit Setup       (Shift) F2 : Change Color          │
├─────────────────────────────────────────────────────────────────┤
│            Time, Date, Hard Disk Type...                          │
└─────────────────────────────────────────────────────────────────┘
```
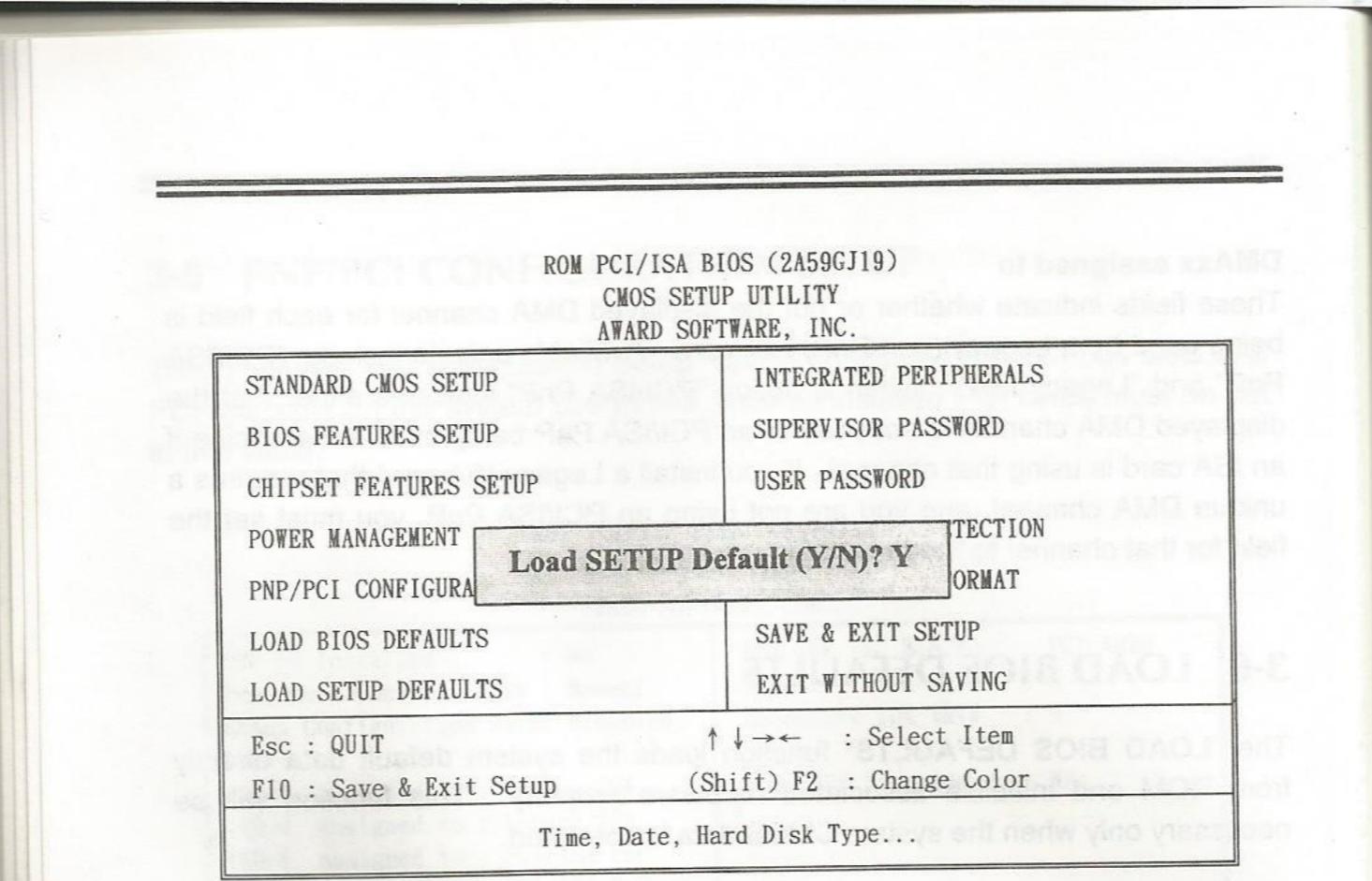
Figure 3-8

3-8 INTEGRATED PERIPHERALS SETUP

```
                    ROM PCI/ISA BIOS (2A59GJ19)
                      INTEGRATED PERIPHERALS
                      AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────────┐
│  IDE HDD Block Mode       : Enabled   Onboard Parallel Port : 378/IRQ7 │
│  IDE Primary Master PIO   : Auto      Parallel Port Mode     : SPP     │
│  IDE Primary Salve  PIO   : Auto                                  │
│  IDE Secondary Master PIO : Auto                                  │
│  IDE Secondary Slave  PIO : Auto                                  │
│  IDE Primary Master UDMA  : Auto                                  │
│  IDE Primary Slave UDMA   : Auto                                  │
│  IDE Secondary Master UDMA: Auto                                  │
│  IDE Secondary Slave UDMA : Auto                                  │
│  On-Chip Primary   PCI IDE: Enabled                              │
│  On-Chip Secondary PCI IDE: Enabled                              │
│  USB Keyboard Support     : Disabled                             │
│                                                                   │
│  Onboard FDC Controller   : Enabled                              │
│  Onboard SERIAL PORT 1    : Auto                                 │
│  Onboard SERIAL PORT 2    : Auto                                 │
│  UR2 Mode                 : Normal                               │
│                                       ┌─────────────────────────┐│
│                                       │ Esc: Quit   ↑↓→←: Select Item│
│                                       │ F1 : Help   Pu/Pd/+/-:Modify │
│                                       │ F5 : Old Values (Shift)F2 : Color│
│                                       │ F6 : Load BIOS Defaults  ││
│                                       │ F7 : Load Setup Defaults ││
│                                       └─────────────────────────┘│
└─────────────────────────────────────────────────────────────────┘
```

Figure 3-9

NOTE: If you don't use the Onboard IDE connector, than use On-card (PCI or ISA card) IDE connector. You will set Onboard Primary IDE: Disabled an Onboard Secondary IDE: Disabled from CHIPSET FEATURES SETUP UTILITY.

The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm).

- **IDE HDD Block Mode:** The default value is Enabled.

  Enabled: Enabled IDE HDD Block Mode. The HDD transfer rate is better than Disable.

  Disabled: Disable IDE HDD Block Mode.

- **IDE Primary Master PIO:** The default value is Auto.

  Auto: BIOS will automatically detect the Onboard Primary Master PCI IDE HDD Accessing mode.

  Mode0~4:   Manually set the IDE Accessing mode.

- **IDE Primary Slave PIO:** The default value is Auto.

  Auto: BIOS will automatically detect the Onboard Primary Slave PCI IDE HDD Accessing mode.

  Mode0~4:   Manually set the IDE Accessing mode.

- **IDE Secondary Master PIO:** The default value is Auto.

  Auto: BIOS will automatically detect the Onboard Secondary Master PCI IDE HDD Accessing mode.

  Mode0~4:   Manually set the IDE Accessing mode.

- **IDE Secondary Slave PIO:** The default value is

  Auto: BIOS will automatically detect the Onboard Secondary Slave PCI IDE HDD Accessing mode.

  Mode0~4:   Manually set the IDE Accessing mode.

- **Onboard Primary PCI IDE:** The default value is Enabled.

  Enabled: Enable Onboard 1 st channel IDE port.

  Disabled: Disable Onboard 1 st channel IDE port. When use On-card (PCI or ISA card) IDE connector.

- **Onboard Secondary PCI IDE:** The default value is Enabled.

  Enabled: Enable Onboard 2 nd channel IDE port.

  Disabled: Disable Onboard 2 nd channel IDE port. When use On-card (PCI or ISA card) IDE connector.

- **PCI Slot IDE 2nd Channel:** The default value is Enabled.

  Enabled: Enable secondary IDE port and BIOS will assign IRQ15 for this port.

  Disabled: Disable secondary IDE port and IRQ15 is available for other device.

- **Onboard FDC Controller:** The default value Enabled.

  Enabled: Enable the Onboard floppy drive interface controller.

  Disabled: Disable the Onboard floppy drive interface controller. When use On-card ISA FDC's controller.

- **Onboard Serial Port 1:** This field allows the user to sellect the serial port. The default value is COM1.

  COM1:   Enable Onboard Serial port 1 and address is 3F8H.

  COM2:   Enable Onboard Serial port 1 and address is 2F8H.

  COM3:   Enable Onboard Serial port 1 and address is 3E8H.

  COM4:   Enable Onboard Serial port 1 and address is 2E8H.

  Disabled: Disable Onboard SMC CHIP's Serial port 1.

- **Onboard Serial port 2:** This field allows the user to sellect the serial port. The default value is COM2.

  COM1:   Enable Onboard Serial port 2 and address is 3F8H.

  COM2:   Enable Onboard Serial port 2 and address is 2F8H.

  COM3:   Enable Onboard Serial port 2 and address is 3E8H.

  COM4:   Enable Onboard Serial port 2 and address is 2E8H.

  Disabled: Disable Onboard SMC CHIP's Serial port 2.

- **Onboard Parallel port:** This field allows the user to sellect the LPT port. The default value is 378H.

  378H: Enable Onboard LPT port and address is 378H.

  278H: Enable Onboard LPT port and address is 278H.

  3BCH: Enable Onboard LPT port and address is 3BCH.

  Disabled: Disable Onboard SMC CHIP's LPT port.

NOTE: *Parallel Port address is 378H/3BCH that selects the rounting of IRQ7 for LPT1.*

                   Parallel Port address is 278H that selects the rounting of IRQ5 LPT1.

- **Onboard Parallel port Mode:** This field allows the user to sellect the parallel port mode. The default value is ECP + EPP.

  Normal: Standard mode. IBM PC/AT Compatible bidirectional parallel port.
  EPP: Enhanced Parallel Port mode.
  ECP: Extended Capabilities Port mode.
  EPP+ECP: ECP Mode & EPP Mode.

3-9 SUPERVISOR/USER PASSWORD

This item lets you configure the system so that a password is required each time the system boots or an attempt is made to enter the Setup program (Refer to Figure 3-3 for the details). Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose either Supervisor Password or User Password in the Main Menu and press <Enter>. The following message appears:
   > **"Enter Password:"**

2. The first time you run this option, enter your password up to only 8 characters and press <Enter>. The screen does not display the entered characters. For no password just press <Enter>.

3. After you enter the password, the following message appears prompting you to confirm the password:
   > **"Confirm Password:"**

4. Enter exact the same password you just typed again to confirm the password and press <Enter>.

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the password you entered before, choose the Supervisor Password and Press <Enter>. It will delete the password that you bad before.

7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on your machine next time.

3-10   IDE HDD AUTO DETECTION

The "IDE HDD AUTO DETECTION" utility is a very useful tool especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type and install in the system automatically. Also you can set HARD DISK TYPE to "Auto" in the STANDARD CMOS SETUP to have same result. The BIOS will Auto-detect the hard disk size and model on display during POST.

```
                ROM PCI/ISA BIOS (2A59GJ19)
                    STANDARD CMOS SETUP
                   AWARD SOFTWARE, INC.

 Date (mm:dd:yy) : Tue, Jul, 01  1997
 Time (hh:mm:ss) : 15 : 43 : 18

 HARD DISKS          TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE
 Primary Master    :
 Primary Slave     :
 Secondary Master  :
 Sec           Select Secondary Slave Option (N=Skip):N

     OPTIONS  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE

      1 (Y)     0    0     0       0       0      0    NORMAL


 Esc : Quit         ↑↓→← : Select Item      Pu/Pd/+/- : Modify
 F1  : Help         (Shift)F2: Change Color
```

Figure 3-10

NOTE: HDD Modes
The Award BIOS supports 3 HDD modes : NORMAL, LBA & LARGE

NORMAL mode
Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for NORMAL mode are 1024, 16 & 63.

```
      no.  Cylinder       (1024)
  x   no.  Head           (  16)
  x   no.  Sector         (  63)
  x   no.  per sector     ( 512)
                 528 Megabytes
```

If user set this HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that!

LBA (Logical Block Addressing) mode

A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 Gigabytes which is obtained by the following formula:

```
      no.  Cylinder    (1024)
  x   no.  Head        ( 255)
  x   no.  Sector      (  63)
  x   bytes per sector ( 512)
              8.4 Gigabytes
```

LARGE mode

Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award BIOS provides another alternative to support these kinds of LARGE mode:

CYLS.	HEAD	SECTOR	MODE
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is nultiplied by 2. Reverse transformation process will be made inside INT 12h in order to access the right HDD address the right HDD address!

Maximum HDD size:

```
      no.  Cylinder    (1024)
  x   no.  Head        (  32)
  x   no.  Sector      (  63)
  x   bytes per sector ( 512)
              1 Gigabytes
```

NOTE:

To support LBA or LARGE mode of HDDs, there must be some softwares involved. All these softwares are located in the Award HDD Service Routine (1NT 13h). It may be failed to access a HDD with LBA (LARGE) mode selected if you are running under a Operating System which replaces the whole INT 13h.

UNIX operating systems do not support either LBA or LARGE and must set to the Standard mode. UNIX can support drives larger than 528MB.

3-11 SAVE & EXIT SETUP

The "SAVE & EXIT SETUP" option will bring you back to boot up procedure with all the changes you just made which are recorded in the CMOS RAM.

3-12 EXIT WITHOUT SAVING

The "EXIT WITHOUT SAVING" option will bring you back to normal boot up procedure without saving any data into CMOS RAM. All of the old data in the CMOS will not be destroyed.

3-13 I/O & MEMORY MAP

MEMORY MAP

Address Range	Size	Description
00000-7FFFF	512K	Conventional memory
80000-9FBFF	127K	Extended Conventional memory
9FC00-9FFFF	1K	Extended BIOS data area if PS/2 mouse is installed
A0000-C7FFF	160K	Available for Hi DOS memory
C8000-DFFFF	96K	Available for Hi DOS memory and adapter ROMs
E0000-EEFFF	60K	Available for UMB
EF000-EFFFF	4K	Video service routine for Monochrome & CGA adapter
F0000-F7FFF	32K	BIOS CMOS setup utility
F8000-FCFFF	20K	BIOS runtime service routine (2)
FD000-FDFFF	4K	Plug and Play ESCD data area
FE000-FFFFF	8K	BIOS runtime service routine (1)

I/O MAP

000-01F	DMA controller (Master)
020-021	INTERRUPT CONTROLLER (Master)
022-023	CHIPSET control registers. I/O ports
040-05F	TIMER control registers
060-06F	KEYBOARD interface controller (8042)
070-07F	RTC ports & CMOS I/O ports
080-09F	DMA register
0A0-0BF	INTERRUPT controller (Slave)
0C0-0DF	DMA controller (Slave)
0F0-0FF	MATH COPROCESSOR
1F0-1F8	HARD DISK controller
278-27F	PARALLEL port 2
2B0-2DF	GRAPHICS adapter controller
2F8-2FF	SERIAL port 2
360-36F	NETWORK ports
378-37F	PARALLEL port 1
3B0-3BF	MONOCHROME & PARALLEL port adapter
3C0-3CF	EGA adapter
3D0-CDF	CGA adapter
3F0-3F7	FLOPPY DISK controller
3F8-3FF	SERIAL port-1

3-14   TIME & DMA CHANNELS MAP

TIME MAP: TIMER Channel 0 System timer interrupt

                          TIMER Channel 1 DRAM REFRESH request

                          TIMER Channel 2 SPEAKER tone generator

DMA CHANNELS: DMA Channel 0 Available

                          DMA Channel 1 Onboard ECP (Option)

                          DMA Channel 2 FLOPPY DISK (SMC CHIP)

                          DMA Channel 3 Onboard ECP (Default)

                          DMA Channel 4 Cascade for DMA controller 1

                          DMA Channel 5 Available

                          DMA Channel 6 Available

                          DMA Channel 7 Available

3-15   INTERRUPT MAP

NMI: Parity check error

IRQ (H/W):   0 System TIMER interrupt from TIMER 0

                          1 KEYBOARD output buffer full

                          2 Cascade for IRQ 8-15

                          3 SERIAL port 2

                          4 SERIAL port 1

                          5 PARALLEL port 2

                          6 FLOPPY DISK (SMC CHIP)

                          7 PARALLEL port 1

                          8 RTC clock

                          9 Available

                       10 Available

                       11 Available

                       12 PS/2 Mouse

                       13 MATH coprocessor

                       14 Onboard HARD DISK (IDE1) channel

                       15 Onboard HARD DISK (IDE2) channel

3-16 RTC & CMOS RAM MAP

RTC & CMOS:

00	Seconds
01	Second alarm
02	Minutes
03	Minutes alarm
04	Hours
05	Hours alarm
06	Day of week
07	Day of month
08	Month
09	Year
0A	Status register A
0B	Status register B
0C	Status register C
0D	Status register D
0E	Diagnostic status byte
0F	Shutdown byte
10	FLOPPY DISK drive type byte
11	Reserve
12	HARD DISK type byte
13	Reserve
14	Equipment type
15	Base memory low byte
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte
19-2d	
2E-2F	
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	DATE CENTURY byte
33	INFORMATION FLAG
34-3F	Reserve
40-7F	Reserved for CHIPSET SETTING DATA

3-17 BIOS REFERENCE-POST CODES

ISA PORT codes are typically output to port address 80h.

Post	Name	Description
CO	Turn Off Chipset Cache	OEM Specific-Cache controller.
1	Processor Test 1	Processor Status (1 FLAGS) Verification. Tests the following processor status flags carry, zero, sign, overflow. The BIOS will set each of these flags, verify the are set, then turn each flag off and verify it is off.
2	Processor Test 2	Read/ Write/ Verify all CPU registers except SS, SP, and BP with data pattern FF and OO.
3	Initialize Chips	Disable NMI, PIE, AIE, UEI, SOWV. Disable video, parity checking, DMA. Reset math coprocessor. Clear all page registers, CMOS shutdown byte. Initialize timer 0, 1, and 2, including set EISA timer to a known state. Initialize DMA Controllers 0 and 1. Initialize interrupt controllers 0 and 1. Initialize EISA extended registers.
4	Test Memory Refresh Toggle	RAM must be periodically refreshed inorder to keep the memory from decaying. This function assures that the memory refresh function is working properly.
5	Blank video, Initialize keyboard	Keyboard controller initialization.
6	Reserved	
7	Test CMOS Interface and Battery Status	Verifies CMOS is working correctly, detects bad battery.
BE	Chipset Default Initialization	Program chipset registers with power on BIOS defaults.
C1	Memory presence test	OEM Specific-Test to size on-board memory.
C5	Early Shadow	OEM Specific-Early Shadow enable for fast boot.
C6	Cache presence test	External cache size detection.

8	Setup low memory	Early chip set initialization.
		Memory presence test.
		OEM chip set routines.
		Clear low 64K of memory.
		Test first 64K memory.
9	Early Cache Initialization	Cyrix CPU initialization.
		Cache initialization.
A	Setup Interrupt Vector Table	Initialization first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL
B	Test CMOS RAM Checksum	Test CMOS RAM Checksum, if bad, or insert key pressed, load defaults.
C	Initialize keyboard	Detect type of keyboard controller (optional) Set NUM_LOCK status.
D	Initialize Video Interface	Detect CPU clock.
		Read CMOS location 14h to find out type of video in use.
		Detect and Initialize Video Adapter.
E	Test Video Memory	Test video memory, write sign-on message to screen.
		Setup shadow RAM.Enable shadow according to Setup.
F	Test DMA Controller 0	BIOS checksum test.
		Keyboard detect and initialization.
10	Test DMA Controller 1	
11	Test DMA Page Registers	Test DMA Page Registers.
12-13	Reserved	
14	Test Timer Counter 2	Test 8254 Timer 0 Counter 2.
15	Test 8259-1 Mask Bits	Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.
16	Test 8259-2 Mask Bits	Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.

17	Test Stuck 8259's Interrupt Bits	Turn off interrupts then verify no interrupt mask register is on.
18	Test 8259 Interrupt Functionality	Force an interrupt and verify the interrupt occurred.
19	Test Stuck NMI Bits (Parity I/O Check)	Verity NMI can be cleared.
1A		Display CPU clock.
1B-1E	Reserved	
1F	Set EISA Mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests an clear EISA mode flag. Test EISA Configuration Memory Integrity (checksum & communication interface).
20	Enable Slot 0	Initialization slot 0 (System Board).
21-2F	Enable Slot 1-15	Initialize slot 1 through 15.
30	Size Base and Extended Memory	Size base memory from 256K to 640K and extended memory above 1MB.
31	Test Base and Extended Memory	Test base memory from 256K to 640K and extended memory above 1MB using various patterns. NOTE: This will be skipped in EISA mode and can be "skipped" with ESC key in ISA mode.
32	Test EISA Extended Memory	If EISA Mode flag is set then test EISA memory found in slots initialization. NOTE: This will be skipped in ISA mode and can be "skipped" with ESC key in EISA mode.
33-3B	Reserved	
3C	Setup Enabled	
3D	Initialize & install Mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
3E	Setup Cache Controller	Initialize cache controller.
3F	Reserved	
BF	Chipset Initialization	Program chipset registers with Setup values
40		Display virus protest disable or enable.
41	Initialize Floppy Drive & Controller	Initialize floppy disk drive controller and drives.
42	Initialize Hard Drive & controller	Initialize hard drive controller and any drives.

43	Detect & Initialize Serial/Parallel Ports	Initialize any serial and parallel ports (also game port).
44	Reserved	
45	Detect & Initialize Math Coprocessor	Initialize math coprocessor.
46	Reserved	
47	Reserved	
48-4D	Reserved	
4E	Manufacturing POST Loop or Display Messages	Reboot if Manufacturing POST Loop pin is set. Otherwise display any messages (i.e., any non-fatal errors that were detected during POST) and enter Setup.
4F	Security Check	Ask password security (optional).
50	Write CMOS	Write all CMOS values back to RAM and clear screen.
51	Pre-boot Enable	Enable parity checker. Enable NMI, Enable cache before boot.
52	Initialize Option ROMs	Initialize any option ROMs present from C8OOOh to EFFFFh. NOTE: When FSCAN option is enabled, will initialize from C8OOOh to F7FFFh.
53	Initialize Time Value	Initialize time value in 40h:BIOS area.
60	Setup Virus Protect	Setup virus protect according to Setup.
61	Set Boot Speed	Set system speed for boot.
62	Setup Num Lock	Setup Num Lock status according to Setup.
63	Boot Attempt	Set low stack. Boot via INT 19h.
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, display. Press F1 to disable NMI, F2 reboot.
E1-EF	Setup Pages	E1-Page 1, E2-Page 2, etc.
FF	Boot	

VER: B